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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|------------------------|---|------------------|
| 09/601,912 | 12/01/2000 | Vasilios Kanellopoulos | 6-1034-040 | 5277 |
| 803 | 7590 | 10/03/2003 | | |
| STURM & FIX LLP 206 SIXTH AVENUE SUITE 1213 DES MOINES, IA 50309-4076 | | | EXAMINER WYROZEBSKI LEE, KATARZYNA I | |
| | | | ART UNIT 1714 | PAPER NUMBER |

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------|----------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/601,912 | KANELLOPOULOS ET AL. | |
| | Examiner | Art Unit | |
| | Katarzyna Wyrozebski Lee | 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the application at hand, the applicants have incorporated into claims 1 and 7 negative limitation of absence of an organotin catalyst. According to *In re Grasselli*, US Court of Appeals for Federal Circuit 738 F2d (1984) each negative limitation has to have explicit support in the original presentation. No such support was found for absence of organotin catalyst.

Since the newly presented claims contain new matter, the rejections of record as stated in the last office action mailed on 3/18/2003 are not overcome and thereby are incorporated here by reference.

In the event applicants successfully traverse the new matter rejection, new rejection as necessitated by amendment if stated in this office action. The rejection will demonstrate that

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organotin catalyst is the only catalyst that can be utilized in the reaction process between Si-OH and phenol.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 5-7 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iimuro (US 5,132,349) in view of MASAHIKO (JP 1-230661 Abstract).

The discussion of the disclosure of the prior art of Iimuro from paragraph 4 of the previous office action mailed on 3/18/2003 is incorporated here by reference.

The difference between the present invention and the disclosure of the prior art of Iimuro is showing that in the absence of the organotin catalyst, the condensation reaction between silanol group and phenol group will occur.

In the light of the above difference, the prior art of MASAHIKO discloses composition having excellent mechanical strength, which is formed by reacting phenolic resin having hydroxyl groups with silanol terminated organopolysiloxane and in the presence of crosslinking agent. In addition to organotin catalyst, the disclosure of the prior art of MASAHIKO teaches that the zinc and cobalt compounds as well as their mixtures are also suitable as catalyst and thereby functional equivalents. The catalysts of the prior art of MASAHIKO are discussed in on

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page 5 of the prior art lines 7-20. The catalysts are cobalt and zinc compounds of 2-ethyl hexylate, naphthanoate and stearate as well as tetrabutyl titanate. The prior art of MASAHIKO further supports examiner's statement that the reaction that will occur in the prior art of Iimura is that of silanol and phenol not something else.

Using catalyst system allows one of ordinary skill in the art allows reaction between silanol groups and phenol groups, which result in a composition having excellent mechanical strength.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the zinc, cobalt or titanium catalyst system of MASAHIKO instead of tin catalyst system of Iimuro and thereby obtain the claimed invention. Using other catalysts that are not organotin type catalyst would still afford reaction between the silanol groups and phenol groups.

5. Claims 2-4, 8-11, 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iimuro (US 5,132,349) in view of MASAHIKO (JP 1-230661 Abstract) as applied to claims 1, 5-7, 12-14 above, and further in view of Kane (US 5,736,619).

The discussion of the disclosure of the prior art of IIMURO and MASAHIKO from paragraph 4 of this office action is incorporated here by reference.

The difference between the present invention and the disclosure of IIMURO and MASAHIKO is recitation of different temperature ranges as well as different phenolic monomers that can be utilized.

The discussion of the disclosure of the prior art of KANE from paragraph 8 of the previous office action mailed on 3/18/2003 is incorporated here by reference.

The composition for use in friction materials can comprise of phenolic resin that is made of different phenolic monomers. Resulting composition has improved chemical resistance, corrosion resistance and can be cured at over various temperature ranges.

In the light of the above disclosure it would have been obvious to one having ordinary skill in the art at the time of the instant invention to utilize the monomers of KANE in composition if IIMURA and MASAHIKO and thereby obtain the claimed invention. Such modification would still arrive at a composition suitable for use in friction materials.

In the amendment filed on 7/17/2003 the applicants have argued following:

a) The prior art of IIMURO utilizes organotin catalyst for silanol condensation.

The examiner agrees.

b) Organotin catalyst in aqueous solution favors reaction between the Si-OH groups compared to the reactions between Si-OH and phenolic OH. Si-OH group is a stronger acid than the phenolic OH group and the Si-OH is a stronger base than the phenolic OH. In the presence of organotin catalyst the stronger acid (SiOH) will react with stronger base (SiOH).

With respect to the above argument, it seems like the Si-OH group is more active, i.e., better leaving group and phenolic OH group would displace that of Si-OH. From the article that the applicants are referring to, nothing can be concluded for the following reason: The article provided does not even touch the subject of any catalyst system. In fact, WEST and BENY

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study acidity and basicity of the silanols depending on the substituents they have. They have concluded that the silanol containing phenolic group is the most acidic and such result was obtained by studying OH shift spectra. With respect to the basicity WEST and BENY give short summary going from most basic to least basic compounds and these are: alkyl carbinols > alkylsilanols > arylcarbinols ~ arylsilanols. Therefore contrary to applicants statement above, aliphatic alcohols are more basic than aliphatic silanols and aromatic silanols have basicity approximately equal to that of aromatic silanols. However, this still does not disqualify the prior art of IIMURO.

With respect to the applicant's statement that the SiOH is stronger acid and at the same stronger base, such can possible if silanol has more than two reactive groups.

b) The prior art of KANE does not teach epoxy resin or epoxidized polysiloxane.

With respect to the prior art of KANE, such was utilized to provide for different monomers that can be used in making phenolic resins and temperature at which hexamine tetramine is capable of curing the resin. The applicants therefore have not successfully traversed examiner's position of why it would have been obvious to use different phenolic monomers and temperature to cure otherwise known composition.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski Lee whose telephone number is (703) 306-5875. The examiner can normally be reached on Mon-Thurs 6:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Katarzyna Wyrozebski
KIWL
September 29, 2003.

GROUP 1500
PRIMARY EXAMINER
EDWARD J. CAIN

